

ember 1956
VII, No. 4

CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

IN THIS ISSUE:

THE LOS ANGELES COUNTY SUPERINTENDENT'S OFFICE REPORTS ON EDUCATIONAL RESEARCH

- An Administrator Looks at Educational Research
- Learning, Personality, and Physiological Interactions
- Administrative Research in the County Office
- The Student Survey
- "Estimated True Growth"

A FRAMEWORK FOR CONCEPTUAL RESEARCH

BOOK REVIEWS

published by

CALIFORNIA TEACHERS ASSOCIATION

693 Sutter Street San Francisco 2 California



CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

Published by the CALIFORNIA TEACHERS ASSOCIATION for the
CALIFORNIA ADVISORY COUNCIL ON EDUCATIONAL RESEARCH

Editor

KENNETH R. BROWN
Director of Research, C.T.A.
and Chairman of the Council

Associate Editor

GARFORD G. GORDON
Assistant Director of Research, C.T.A.
and Secretary of the Council

Editorial Assistant

ANNE T. PROTOPOPOFF

EDITORIAL BOARD: MEMBERS OF THE COUNCIL

HUGH M. BELL

Dean, Student Personnel and Guidance
Chico State College

MERLE H. ELLIOTT

Director of Research
Oakland City Schools

HOWARD A. BOWMAN

Director, Evaluation and Research
Los Angeles City Schools

D. WELTY LEFEVER

Professor of Education
University of Southern California

LILLIE L. BOWMAN

Director, Bureau of Research
San Francisco Unified School District

HENRY W. MAGNUSON

Chief, Bureau of Education Research
State Department of Education

HAROLD D. CARTER

Professor of Education
University of California, Berkeley

DAVID G. RYANS

Professor of Education
University of California at Los Angeles

ARTHUR P. COLADARCI

Associate Professor of Education and Psychology
Stanford University

HARRY W. SMALLENBURG

Director, Division of Research and Guidance
Los Angeles County Schools

ROBERT E. CRALLE

Executive Secretary
California Association of School Administrators
Pasadena, California

WILLIAM H. STEGEMAN

Director of Research
San Diego City Schools

HENRY I. WEITZEL

Research Director
Pasadena City Schools

Published at San Francisco five times a year: January, March, May, September, and November. Subscription price: \$6.00 per year; single copies, \$1.50. All correspondence should be directed to: CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH, 693 Sutter Street, San Francisco 2, California. Checks should be made payable to the CALIFORNIA TEACHERS ASSOCIATION.

Certain articles in this *Journal* are listed in *Psychological Abstracts*.

Member of the Educational Press Association of America

Entered as second class matter at the Post Office at San Francisco, California

Copyright 1956 by the California Teachers Association

CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

Volume VII

SEPTEMBER, 1956

Number 4

CONTENTS

THE LOS ANGELES COUNTY SUPERINTENDENT'S OFFICE REPORTS ON EDUCATIONAL RESEARCH

An Introduction	146
<i>Harry W. Smallenburg</i>	
An Administrator Looks at Educational Research	147
<i>Robert Bruce Walter</i>	
Children's Learning Personality, and Physiological Interactions: A Progress Report	153
<i>Beatrice Lantz</i>	
Comparison of Test Bias in the Davis-Eells Games and the California Test of Mental Maturity	159
<i>Thomas Wood Smith</i>	
Administrative Research in the County Office	164
<i>Michael E. DiPietro</i>	
An Evaluation of the Child Study Program in Los Angeles County .	168
<i>Gertrude Wood</i>	
The Student Survey: A Multi-Purpose Guidance Instrument . . .	174
<i>Harold J. Reed</i>	
"Estimated True Growth," Lord's Equations Applied to Reading Test Data	178
<i>John Caffrey</i>	
The Columbia Mental Maturity Scale and the Stanford-Binet Test with Cerebral Palsied Children	183
<i>Beatrice Lantz and Ruth Wolf</i>	
A SUGGESTED FRAMEWORK FOR CONCEPTUAL RESEARCH	186
<i>Robert C. McKean</i>	
BOOK REVIEWS	189

An Introduction

This issue of the *California Journal of Educational Research* is devoted to research at the county level. Articles have been prepared to illustrate six important elements in a functional research program. One element, *administrator interest and support*, is illustrated by Dr. R. B. Walter's article, "An Administrator Looks at Educational Research." A second element, *coordination of research activities among districts*, is illustrated in the research report by Dr. Beatrice Lantz entitled "Children's Learning, Personality, and Physiological Interactions: A Progress Report."

A third important element in a research program, *critical analysis of tools and techniques*, is exemplified by Dr. Thomas W. Smith in his article, a preliminary "Comparison of Test Bias in the Davis-Eells Games and the California Test of Mental Maturity."

A fourth element in a research program, *gathering and organizing data of value to specific groups*, is illustrated by Dr. DiPietro's review of research services to chief administrators, entitled "Administrative Research in the County Office," and by Dr. Harold J. Reed's report of service to school counselors entitled "The Student Survey: A Multi-Purpose Guidance Instrument."

A fifth important element, *evaluation of a specific service*, is presented by Dr. Gertrude Wood in her article entitled "An Evaluation of the Child Study Program in Los Angeles County."

A sixth element might be called *frontier applications of statistical formulas to educational problems*. This is illustrated in an article by Dr. John Caffrey, "Applications of Lord's Estimated True Growth Equations to Reading Test Data."

It is the hope of the contributors that this issue of the *California Journal of Educational Research* helps to demonstrate the tremendous potential of a County Superintendent's Office in developing a well-balanced, coordinated program of research in, among, for, and with the school districts of the County.—*Harry Smallenburg*.

Dr. Harry Smallenburg, guest editor of this special issue, has served as Director, Division of Research and Guidance, Office of Los Angeles County Superintendent of Schools, since 1944. His previous experience includes service as Director of Research, Acting Director of Guidance, Elementary Principal, and teacher, Burbank City Schools; and teacher, Buffalo, New York. He holds the Doctor's and Master's Degrees in Educational Psychology from the University of Southern California, and an A.B. from the University of Buffalo. He is a Past President of the California Educational Research and Guidance Association, Southern Section, the California School Supervisors Association, President-Elect of the American School Counselors Association, and is a member of the State Advisory Council on Educational Research.

An Administrator Looks at Educational Research

ROBERT BRUCE WALTER

This article stems naturally from three strong personal beliefs. The initial one is that we as individual citizens have the moral responsibility to become as intelligent as our innate capacities and our environmental opportunities will permit. The next is that we are duty-bound to use the full force of our intelligence in dealing with the varying situations which confront us as we go through life. The third takes form in the conviction that in this technological age it is not possible to act intelligently in any major field of endeavor, such as industry, national defense, or education, without a heavy expenditure for scientific research and a strong reliance upon the results obtained therefrom.

Research In Our Modern World

Research is the keynote of the civilization into which modern science and technology have ushered us. During the last fifteen years the amount spent in this country by government, industry, universities, foundations and other groups interested in research has increased from 900 million dollars to more than four billion dollars per year. (2, pV.) It is reported reliably that industry spends between four and ten per cent of its gross sales in research. (5, p3.) A representative of the National Science Foundation recently expressed the opinion that society has received from 100 to 200 per cent a year during the last 25 years for its investment in research. (2, pVI.)

Extent of educational research in California School Systems. There appears to be no comprehensive survey which sets forth the extent of educational research for the State of California as a whole. The study by Liu,

Dr. Robert Bruce Walter has served as Chief Deputy Superintendent in the Office of the Los Angeles County Superintendent of Schools since 1942. One of his principal functions is the coordination of the instructional program of that office. He served as District Superintendent of the Arcadia and the San Gabriel Elementary School Districts before joining the County Superintendent's staff. His doctoral dissertation was "A Study of Educational Functions of the County Superintendent of Schools in California."

Educational Research in Major American Cities, published in 1945, includes two California cities—Los Angeles and San Francisco. The amounts reported as being spent for educational research in those two school systems at the time the data for the study were gathered were very small. (3 p35, p42.) A recent check with a few large school systems in the Los Angeles area indicates that the amounts budgeted for educational research in 1955-56 by the school systems contacted represented a very small part of the budgets percentage-wise. In only one case did the amount exceed one per cent. It probably would be safe to assume that only a small fraction of one per cent of the total school district budget is being spent in school systems of this state for educational research other than that involved in group testing of pupils and gathering of data for administrative decisions.

Education can learn a lesson from industry. When we take into consideration both the highly successful use of research in industrial problem-solving and the many unsolved problems facing education, it seems clear that the public schools can very properly take a page from the diary of industry and proceed to attack their problems by similar means—in this case a greatly expanded use of educational research. Such research should represent the most intelligent and unremitting effort possible on the part of the schools to find out what the spirit and tempo of the age demand in the form of educational opportunities that will help boys and girls, as well as adults, to grasp the varied meanings of the changing, mechanical civilization of which they are a part.

Tasks That Face Us

Several tasks face us in the immediate future if we accept the challenge to move in the direction of a greatly expanded program of educational research in California. These tasks are:

1. Alerting the people—both school and lay—to the pressing need for more educational research.
2. Securing better financial support from public school monies for research.
3. Obtaining more persons trained in research for public school work.
4. Helping make research more applicable to practical school situations.
5. Arranging for better coordination of the efforts of the various groups which are engaged in research.
6. Helping the public school systems of California to make a substantial start in educational research during the current school year (1956-57) with the means at hand.

Alerting the people to the need for educational research. The task of alerting the people of California to the need for greater emphasis on educational research might be approached through organizations like the California Teachers Association, California Educational Research Associa-

tion, the California School Boards Association, and the California Association of School Administrators. It might be possible for one or more of these organizations to devote some of their conference time this year to a consideration of this problem. The following are topics which might be used as the basis for addresses or panel discussions at such conferences:

1. The Report of the February 29, 1956, Western New York School Board Institute on the theme "Meeting the Challenge of Tomorrow Through Research Today."
2. Major educational problems such as the following, on which research is needed:
 - a. The essential features of a desirable educational program at elementary, high school, and junior college levels.
 - b. The cost of such a program.
 - c. The sources from which the financial support of such a program could be obtained.
 - d. The effects of class size upon desirable learning of children and youth.
3. The extensive and fruitful use of research and development in the economic life of America.

Ways of interesting the people of each local community in the need for more educational research from local funds could be worked out by the school board, the superintendent, and leading citizens in terms of the needs and resources of the local school district.

Securing financial support of educational research. Moehlman in his 1951 book makes the following statements concerning expenditure for educational research:

Opinion concerning the proportion of the operation budget to be devoted to research ranges from three to ten percent. If any school system devoted five percent annually to develop a thorough and efficient research system, the social dividend would be tremendous. (4, p253)

One of the speakers at the Western New York School Board Institute made the following proposal for financing research:

Suppose that each of our school boards follows the lead of industry and increases its budget next year by four percent . . . and earmarks it for educational research—research for better curriculum, for a lower cost per pupil, increased production per pupil, and better utilization of our facilities. . . . I think that the sky is the limit as to what we can do with the four percent budget for educational research. (5, p6)

In order that a start may be made toward an adequate research program in California it is suggested that each school district in the State include in its 1957-58 budget an amount for educational research equal to one percent of the total current expense budget for that year. It is also suggested that a serious effort be made to spend the amount budgeted during that year on bona fide research that promises to yield the best possible returns to the district in the form of improvement of its educational program.

Obtaining trained persons for educational research. The schools of education and departments of education in colleges and universities appear to be the logical places to train educational researchers. A good start along that line has been made through the emphasis on research in the graduate training of school administrators since World War II. Specialists in the research field for the immediate future might be drawn in part from the group of recently trained administrators. Active recruitment will be needed, however, to assure the requisite number of trained specialists for the long range program.

The training program for teachers—both pre-service and in-service—will need to be revised to provide the training needed by them for effective participation in functional or action research. Additional training requirements of district salary schedules might be revised to include appropriate courses in research for teachers and appropriate credit for research work carried on by teachers.

Helping to make research more practical. The question as to how research can be made more applicable to practical school situations has received special attention during the last five or ten years. Arthur B. Moehlman in his 1951 book on School Administration refers to the functional view of research as "an attitude and practice that must permeate every activity and every person." (4, p253.) He points out that this view stresses the growth of an "individual objectivity toward every activity" and the arousing of an "intellectual curiosity" in all persons connected with school work. (4, p253.) The book by Stephen Corey, *Action Research to Improve School Practices*, published in 1953, has given a great impetus to thinking concerning the kind of research in which teachers and other persons who are not professional researchers may take an important part. In the preface to that book Dr. Corey expresses the belief that teachers, pupils, supervisors, administrators, and school patrons must continuously examine what they are doing and then set to work to identify the practices that must be changed, to try out promising practices, and to gather evidence as to their worth (1, pVIII). The idea underlying this approach to research is that "the studies must be undertaken by those who may have to change the way they do things as a result of the studies" (1, pVIII).

Lest the foregoing emphasis on research by teachers might lead to the belief that professional research specialists would no longer be needed, it should be said that the need for the specialist would be increased by the kind of research described by Dr. Corey. However, the role of research specialists generally would be changed from that of independent researchers to that of consultants and guides.

Arranging for coordination of research. If educational research is extended appreciably beyond its present extent in California, some kind of over-all planning will be needed to avoid unnecessary duplication and to

secure as wide coverage of essential problems as possible. The group that performs this function should be truly representative of the school systems, universities, and associations which are engaged in educational research within the state. The California Advisory Council on Educational Research might serve in this capacity, at least until a larger advisory group could be formed. The coordinating group might address itself to matters such as the following:

1. Outlining a long-range program of research—ten to twenty years.
2. Outlining a program of research for the immediate future—three to five years.
3. Listing research problems in order of priority within long-range and short-range programs.
4. Suggesting the type of agency—school district, university, or association—that is best fitted for doing research on a given type of problem.
5. Keeping a record of research problems which are in the process of being studied.
6. Suggesting methods of formulating, distributing, and utilizing the findings of research.

In order that proper freedom of choice and action might be retained by each agency engaging in research, it would need to be understood from the beginning that the recommendations of the coordinating group would not be binding upon any school district, university, or association.

Making a substantial start in educational research in California. A start during the 1956-57 school year toward a more substantial program of educational research by school districts of the state might be centered about the essential features of a desirable educational program for exceptional children—gifted, retarded, handicapped. Such a start might also have the merit of being of possible value in connection with the 1957 legislative program.

In Conclusion

All of these tasks—alerting the people to the value of educational research, securing better financial support, obtaining trained personnel, providing better coordination of research, helping make research more applicable to practical situation, and making a substantial start in educational research in California—will require skilled and consecrated leadership during the years that lie ahead. The conscientious and intelligent performance of these tasks should, as Moehlman predicted, yield results in the form of social dividends of tremendous magnitude.

(Continued on Page 152)

BIBLIOGRAPHY

1. Corey, Stephen M., *Action Research to Improve School Practices*. New York: Bureau of Publications, Teachers College, Columbia University, 1953. 161 pp.
2. Editors of *Fortune* magazine, *The Mighty Force of Research*. New York: McGraw-Hill Book Company, Inc., 1956. 308 pp.
3. Liu, Bangnee A., *Educational Research in Major American Cities*. New York: King's Crown Press, 1945. 168 pp.
4. Moehlman, Arthur B., *School Administration*. New York: Houghton Mifflin Company, 1951. 514 pp.
5. University of Buffalo, School of Education, and New York State School Boards Association, *Meeting the Challenge of Tomorrow Through Research Today. A Report of the Western New York School Board Institute*. Buffalo: University of Buffalo, School of Education, 1956. 28 pp.

—

Teacher Personnel Practices, Urban School Districts, 1955-56, is the subject of the SPECIAL MEMO issued by the Research Division of the National Education Association in June, 1956. This comprehensive report should prove of interest to those in county offices and in non-city districts, as well as to those directly connected with urban school systems.

* * *

The problem of the present and future roles of county superintendents in California is thoroughly reviewed in the *Proceedings* of the Eighth Spring Conference of the Association of California County Superintendents, which was held at Asilomar, March 19-22, 1956. This comprehensive publication will prove important to those working with school districts and teacher training institutions as well as to those directly connected with county offices. Inquiries should be addressed to Wallace W. Hall, President of the Association, who is Superintendent of Schools in Marin County, with offices at San Rafael, California.

4

Children's Learning, Personality and Physiological Interactions

A PROGRESS REPORT

BEATRICE LANTZ

This is an on-going study in which six school districts of Los Angeles County¹ are cooperating with their Consultant from the Division of Research and Guidance of the Los Angeles County Schools Office, and a Beverly Hills pediatrician. Its purpose is to discover the interrelationships between ability, achievement, personality assessments, sociological status, and certain physiological functionings not ordinarily included in the examinations given by the family physician.

Its basic hypothesis postulates that the child who is growing up normally will perform well within his level of abilities, will have healthy self-estimates, will be accepted by his peers and will, in addition, possess an equally well balanced physiological organism.

Within the deviate child, inefficiencies in physiological functioning may be small and difficult to detect. These, however, may become cumulatively influential in creating learning and personality maladjustments.

Thus, the possibility that the capable non-achiever is primarily emotionally disturbed is challenged by the hypothesis that he may fundamentally be responding to irritabilities created by minor but cumulative cardiac or respiratory malfunctionings, by low maturation level and rate, by glandular

¹ The cooperating school districts are Compton City Schools, Culver City Unified School District, Hermosa Beach City Schools, Manhattan Beach City Schools, Paramount Unified School District, and Redondo Beach City School. Acknowledgement is due to the superintendents, the directors of the guidance and educational services, and to the nurses of these districts; to the Los Angeles County Schools Office, and to the many professional medical and psychological consultants.

Dr. Beatrice Lantz has served as Consultant in Research and Guidance, Office of the Los Angeles County Superintendent of Schools, since 1941. She has also served as Director of Guidance, Ventura, and as Clinical Psychologist at Homewood Terrace and Mt. Zion Hospital in San Francisco. Dr. Lantz received the Doctor of Philosophy Degree from Stanford University.

imbalance or persistent low nutrition. These are the physiological functionings measured in this study. Other laboratory measurements would be important but were impossible to secure in the school situation.

In all of the measured areas there are degrees of efficiency of functioning which may be temporary or persistent. This study is unique in its attempt to discover the interrelationships between these degrees of operational efficiency while the child is in school.

The Pilot Study

In the Spring of 1954, Mrs. Ruth Wolf, Director of Pupil Personnel Services of the Paramount School District, asked their Consultant in Research and Guidance, Dr. Lantz, for help in reassuring an experienced and very puzzled first grade teacher whose children were not achieving as first grade children should.

Classroom observation suggested that this was an unusual group of fatigued and seemingly malnourished children for whom the school's greatest contribution might be the comfort of a relaxing routine with a minimum of learning pressures.

When a battery of tests was administered over a period of time, there was little correlation between two Goodenough Measurement of Intelligence by Drawing tests, the Pintner-Cunningham Mental Test, the Easel Age Scale, the Lee-Clark Reading Readiness Test and the Lee-Clark Primary Reading Test. Many IQ's varied from the 70's to the 110's for a single child, seemingly dependent upon the time of day of test administration.

Dr. Milton Tobias offered to determine the status of certain physiological functionings of these children. Dr. Marion Wenger, who is interested in problems of autonomic balance, added his battery of tests.

Twenty-two boys and 18 girls in the two first grades were examined with parent consent. Wrist X-rays indicated that the 22 boys were suffering a 25 percent delay in maturation. One-third of the boys had a bone age delay of two years or more. One seven-year-old non-reader, otherwise of satisfactory school capability, had a maturation level (bone age) of two and one-half years. The 18 girls showed 14 percent bone age delay. Significant correlations were found between bone age delay, Easel Age, and performance on the Lee-Clark Reading Test.

The respiratory patterns of most of this group were extremely immature, more so for the boys than for the girls. Blood sugar readings were generally low, suggesting ready fatigability. More than one-half of the children had high cholesterol, suggesting low energy level. Three children were found to have rheumatic heart disease.

Their perplexed teacher had reasonable grounds for suspecting that these children were not performing as well as they should. The physiological status of her classroom was such that there would be clinical expectancy of low learning achievement. This was translating clinical

findings into school behavioral expectancies in a way not as yet verified by sufficient medical information secured upon children while functioning in school.

Current Study: The Experimental Design

The planning for this study began in September 1954 and continued through January 1955. During this time Dr. Tobias cooperated with the County consultant and District school psychologists, discussing the physiological measurements which would be important yet possible to secure in the school situation with a minimum of school, child or parental disturbance.

Several research factors were decided by joint conference. Third grade children should be examined because this is a relatively quiescent growth period as well as the age level at which group measurements can first be reliably given. Third grade children in each district should be sampled in relation to their proportional population in the total group. Schools within districts would be chosen with an adequate cross-section population in mind. All of the technicians securing the data must be familiar with children, perceptive to the problems of working within a school situation, and capable of adjusting smoothly to these problems.

This last requirement highlighted the need for a research associate² who would assume the responsibility of securing the educational, psychological and sociological information desired. He would also be responsible for the smooth functioning of the three physiological technicians who would work from an equipped trailer which was to be moved from school to school.³

School superintendents were kept informed of the plans as they evolved. They joined with meetings of the research personnel, the school principals and nurses involved in the cooperating school-districts. A summary of the proposed study with several suggested letters to secure parent consent was furnished each superintendent for Board action and approval.

The careful pre-planning paid dividends. The school nurses were especially helpful in making available their information and screening for vision and hearing. The principals advised their teachers and their PTA of the study and its purposes, thus avoiding doubts when the trailer arrived and when parent consent slips were sent home. The school psychologists spent a great deal of time not only in defining the study but in assuring its smooth operation within the district. They furnished clerical or special help as necessary.

² Robert P. Dunlap, doctoral student at U.S.C., former school psychologist.

³ Financial assistance to provide for the research associate, the technicians, the specially equipped trailer and the extensive statistical analysis for this study has been donated by interested individuals and organizations through INCAS, Inc., a non-profit corporation.

The Data Collected

The necessary data decided upon by the cooperating group, and secured for all the children, included:

Identification: identification number, sex, classroom, teacher.

Sociological: chronological age, sibling order, number of siblings, parental occupation (mother and father), state in which child was born.

Educational: *California Achievement Test* given at time other measurements were secured.

Psychological (all tests given at the time other tests were made): *California Test of Mental Maturity*, *California Test of Personality*, *Bender-Gestalt Test*—group administration standardization undertaken as a sub-study. Pascal and Suttell scoring. *Sociometric test* devised by the cooperating group—raw score being number of times child mentioned in five areas of choice.

Physiological (from the records of the school nurses): history of rheumatic fever, asthma, polio, heart dysfunctions not due to rheumatic fever, encephalitis. R/L vision and hearing loss—Snellen chart and pure tone audiometer. The following measurements taken by three technicians in the trailer: *cardio-respiratory* before and after exercise⁴; *blood sugar*—Folin-Malmros modification of the Folin-Wu method; *bone age*—after Greulich and Pyle; *cholesterol*—modified Bloor method; *hemoglobin*—Newcomber's micro method; *height and weight*—standard procedures; *eye-handedness*—Manoptoscopic techniques.

Altogether, approximately 1200 children were given the physiological tests in the trailer. About 100 of these were children from other than the third grade. These were included at the request of the district nurse or school psychologist as children with known problems and unknown causes for whom they would like this physiological information. The remaining 1100 third grade children represented 92 per cent of all the children in the classrooms which were invited to participate.

These data were collected between February and June 1955, with measurements on each child taken within a two to five day period.

Complete information on all tests is available for 336 boys and 336 girls. These will be the definitive group included in the correlational and factor analyses. The responses of the additional 400 children who missed one or more of the measurements have been analyzed separately. If there is no significant difference between the mean and standard deviations of the variables for those boys and girls who did not secure all of the measurements and for those who did, then there may be confidence that these 336 boys and 336 girls are a representative sampling of the total group. This we already know to be true.

⁴ Comroe, *Methods of Medical Research*, Yearbook, 1953.

Analysis of the Data

There were two responsibilities which meant divergent statistical handling when the data had been collected. The first was the responsibility to return the information concerning the individual children and district status as quickly as possible. This included key punching and recording the data by children, classrooms, schools and school districts.

In addition to individual responses, the districts have been provided with their mean scores, standard deviations and normative group ranges on each measurement. These have been recorded in such fashion that the districts may discover whether and where they vary significantly from other districts and the extent of their variation within or from the group normative range.

Forms were also provided each district on which to report the physiological findings to a child's family physician upon parent request.

The second task was the adaptation of the scores to IBM equipment for purposes of statistical analysis. Key punching, securing the squares and sums of squares so that means and deviations might be computed was performed through the Statistical Section of the Division of Research and Guidance of the Los Angeles County Schools. The Bureau of Standards Western Automatic Computer at the Institute of Numerical Analysis at the University of California at Los Angeles⁵ is electronically performing the computations involved in the factor analyses.

The matrices (male and female) of the inter-correlations of these variables have been completed. Now in process is the male and female factor extraction of the inter-correlation matrices by the modified Thurstone centroid method, with raw factor rotation by the Thurstone analytic method.⁶ From this there should develop evidence that some measurements are more efficient than others in predicting the child's performance.

All of the measurement scores will then be reduced to C-scale scores which can be punched on one IBM card.⁷ If these are arranged in their order of importance as discovered in the factor analysis, a profile of each child's position in this hierarchy is completed.

The determination of the interaction of each variable with every other variable and with the criterion should provide an answer to the original hypothesis—whether there is an inter-action between the physiological functionings of the child as measured, and the educational, psychological and sociological functionings as measured. The extent and direction of these interactions will test and refine the original hypothesis concerning the functioning fitness of children.

⁵ Dr. Thomas H. Southard, Director.

⁶ Dr. J. P. Guilford and Dr. Raymond B. Cattell, statistical consultants.

⁷ Guilford, J. P. *Fundamentals of Statistics in Psychology and Education*. Rev. Ed. McGraw-Hill, 1956.

Summary

In this study it is hypothesized that there may be certain patterns of interaction between a child's educational, psychological, sociological and physiological functionings which may be diagnostically predictive.

These patterns may suggest that if a child's ability is this, his achievement this, his self-estimate this, his acceptancy by others this, and his socio-economic status this, then the chances are good that physiologically he may be functioning like this—or vice versa.

We are most interested in understanding and gaining help for the child who falls beyond the average performance of his group in any of the areas measured. This deviate child is defined in this study by the specific measurements in which he varies significantly from the group performance mean.

This sampling population of 1100 boys and girls represents a normal and typical cross-section of third grade children in school. In this sample we gain not only a fuller definition of what constitutes the average in learning, personality and physiological measurements, but also more meaningful insight into the ways in which the deviate child differs. While he resembles the average child in more ways than he differs, it is these very pertinent points of difference which this study hopes to define.

As a further by-product, this study confirms the fact that coordination at the County level can produce research in which several school districts and community resources are blended to an objective which all define and many execute. Its major warning lies in the need that the County consultant and District personnel be exceedingly sensitive to the nuances of public school functionings and community relations. They must evaluate the possibilities of safe operation within this framework and present carefully defined procedures for administrative understanding and approval. These must be so defined that the collection of the desired information will be as simple and non-disruptive to the classroom as possible.

Comparison of Test Bias in the Davis-Eells Games and the CTMM¹

THOMAS WOOD SMITH

The Davis-Eells Games are designed to be as free as possible of cultural bias. A preliminary study has been made in Los Angeles County at the fifth grade level to investigate the possible existence of less "test bias" in the Games as compared to the California Test of Mental Maturity as indicated by:

1. Less difference between mean scores of upper and lower occupational status groups on either test;
2. Less correlation between the occupational rankings of pupils and their scores on either test.

Procedures of the Study

The principals of seven elementary schools within a large elementary district (total of 18 schools) in Los Angeles County administered the Davis-Eells Games to 13 fifth-grade classes during April, 1954. The schools tested included 3 within the "lower" socio-economic neighborhoods of the district; 3 within "average" neighborhoods, and 1 within the "higher" socio-economic neighborhoods. The 1950 census reports (1) indicated that the employment status of the general area was predominantly "skilled," "operatives," "sales" and "clerical." This district had previously tested the entire fifth-grade group with the *California Test of Mental Maturity* during the same school year in October, 1953. There were 399 pupils in this particular group as originally tested. For 276 pupils, comparative data was obtained on the two tests listed above, as well as data on current and specific descriptions of parental occupations.

¹ California Test of Mental Maturity.

Dr. Thomas W. Smith is Director of Research and Pupil Personnel Services in the Covina School District, California. He was a consultant in the Division of Research and Guidance, Office of the Los Angeles County Superintendent of Schools, from 1946 to June, 1955. He received the B.A. and M.A. degrees at Stanford University and his doctorate at the University of Southern California.

On the basis of the specific descriptions of parental occupation, these pupils were assigned to seven occupational status groups by the procedures of Lloyd Warner's occupational classification system (2):

Occupational Classifications

- 1 == Professional and Managerial
- 2 == Medium Professional Classification
- 3 == Semi-professional
- 4 == Skilled — Clerical — Sales
- 5 == Medium skilled — Clerical — Services
- 6 == Semi-skilled — Clerical — Services
- 7 == Unskilled

In order to increase the reliability of the groupings as well as to follow the study procedures used by Kenneth Eells (3) in his research on "cultural bias," these seven groups were then combined into three status groups:

Upper Status Group: Professional—Medium professional—Semi-professional.

Middle Status Group: Skilled—Clerical—Sales—Medium skilled.

Lower Status Group—Semi-skilled—Lower service and clerical—Unskilled.

Results

Comparison of differences between mean scores of occupational status groups. Table I includes results on the *Davis-Eells Games* and the *California Test of Mental Maturity*. For each test, the means and standard deviations for the total group are recorded last. These are preceded by the means and standard deviations for the upper status, middle status and lower status groups. The trends in this data were apparent upon inspection. The standard errors and t-ratios of the differences between means of upper and lower status groups on the several variables are included in the columns to the right of the means.

In terms of the t-ratios secured, the difference between the mean scores of high and low status groups was significant at the 1 percent level for two of the four test variables. The difference between high and low status groups on the *Davis-Eells* and on the *CTMM* non-language was significant at the 5 percent level. These results indicated that a significant degree of "test bias" existed within the *Games*, as it did within the *California Test of Mental Maturity*. The fact that the mean Indexes of Problem Solving Ability derived from the *Games* for all groups were approximately 7 points below the mean IQ's derived from the same pupils on the *California Test of Mental Maturity* was puzzling. It raised fundamental questions as to the comparability of 1. the populations on which the two tests had been standarized as compared with the population included in this study; 2. the operational validity of quotients derived from either test.

Means and Standard Deviations for Upper, Middle and Lower Status Groups of Fifth Grade Pupils on the Davis-Eells Games and the California Test of Mental Maturity, Including Differences Between Means of Upper and Lower Groups and *t*-Ratios of the Differences

		Occupational Status Groups	Number Pupils	Mean IQ's	Standard Deviations	Difference Upper - Lower Group Means	Standard Error of Difference of Upper-Lower Group Means	<i>t</i> -ratios							
DAVISEELS	GAMES														
		Upper	32	97.50	17.42	7.74	3.43	$t = 2.26$ ($<.05$)							
		Middle	158	94.68	13.61										
		Lower	86	89.76	14.01										
		Total	276	93.48	14.41										
<hr/>															
CTMM		Language													
		Upper	32	104.03	21.73										
		Middle	158	95.04	15.94										
		Lower	86	90.79	15.69										
		Total	276	94.76	17.01										
		Non-Language													
		Upper	32	110.56	18.09										
		Middle	158	107.64	16.79										
		Lower	86	102.45	17.35										
		Total	276	106.36	17.28										
		Total													
		Upper	32	107.50	17.56										
		Middle	158	101.37	13.49										
		Lower	86	96.62	14.29										
		Total	276	100.59	14.58										

Correlations between test scores and occupational rankings. Table II includes correlations computed between the *Davis-Eells IPSA* and IQ's derived from the *California Test of Mental Maturity*, and occupational rankings. The degree of correlation between variables seemed to be in line with the "expected." The World Book Company (4) reported correlations

TABLE II
Intercorrelations, Means, Standard Deviations of Davis-Eells, California Test of Mental Maturity, and Warner Occupational Rank
(N = 276)

	Davis-Eells IPSA*	Calif. Test of Mental Maturity Total	Calif. Test of Mental Maturity Lang.	Warner Occup. Rank
Davis-Eells IPSA*				
C T M M				
Total	.648			
Language	.487	.862		
Non-Language	.627	.859	.530	
Warner Occup. Rank	.226	.280	.274	.202
Means	93.48	100.59	94.76	106.36
Standard Deviations	14.41	14.58	17.01	17.28
				4.73
				1.44

*Index of Problem Solving Ability

between the *Davis-Eells* and other measures of intelligence in the .5 and .6 range. The higher correlation of *Davis-Eells Games* with the Non-language IQ was interesting. Several studies (5, 6) recently reported have provided more elaborate analysis of factors accounting for some of the relationships indicated here.

Conclusions

The small but significantly positive correlation of the *Davis-Eells Games* with occupational rank indicated that approximately the same limited amount of "test bias" existed in this instrument as in the *California Test of Mental Maturity*. This was a surprising finding in view of the purposes and design of the *Games*. Recent research (6) has reported on the following questions: Would this degree of "test bias" be found if the same series of tests were administered to another group of pupils drawn from more varied geographic and socio-economic areas? Would skill in "comprehending oral language" prove to be as much a source of "bias" in the *Games* as reading has been reported to be in conventional tests?

BIBLIOGRAPHY

1. United States Bureau of the Census. *United States Census of Population: 1950*. California: General Characteristics, Vol. II, Part V, Chapter B. Washington: Government Printing Office, 1952.
2. Warner, W. L.; Meeker, M., and Eells, K., *Social Class in America*. Chicago: Science Research Associates, 1949.
3. Eells, K., and others. *Intelligence and Cultural Differences*. Chicago: University of Chicago Press, 1951.
4. Davis, A. and Eells, K. *Davis-Eells Test of General Intelligence or Problem-Solving Ability: Manual*. New York: World Book Company, 1953.
5. Caffrey, J. and Smith, T. W. *Preliminary Identification of Some Factors in the Davis-Eells Games*. Paper read at American Psychological Convention, San Francisco, September 6, 1955.
6. Smith, T. W. *Auding and Reading as Sources of Cultural Bias in the Davis-Eells Games and the California Test of Mental Maturity*. Unpublished Doctor's dissertation, University of Southern California, Los Angeles, 1956.



FORECASTING JUVENILE DELINQUENCY, by William C. Kvaraceus
Boston University Journal of Education, Volume CXXXVIII, Number 4, April, 1956. 43 pages.

Dr. Kvaraceus has had wide experience as a teacher, teacher-educator, guidance worker, and administrator of youth programs. This publication is based upon analyses of several applications of the *K D Proneness Scale*, which he has developed in an effort to make possible the detection of predelinquents in sufficient time for effective remedial work to be done. A wide variety of populations has been studied; and, although the numbers involved in some instances are small, the degree of validity claimed appears to have been well justified.

Unfortunately, although the scale appears to be quite valid in discriminating populations, it appears to have negligible possibilities as a means of making individual predictions. It may be that it can serve in connection with many other devices in making a useful prediction based on multiple factors. However, the nature and multiplicity of the factors needed would seem to be little different from the use of individual guidance of a family type. In other words, the best predictor and preventer of delinquency still seems to be interested and active parents.

Administrative Research in the County Office

MICHAEL E. DiPIETRO

Administrative research in the Office of the Los Angeles County Superintendent of Schools is concerned with furnishing information pertinent to "administration" to district and county office personnel. Such information is furnished on the basis of need, although the type of need may be implied as well as expressed. Data are gathered from the districts whenever necessary. For many studies, however, data are available in the county office as a result of requests for information initiated by the State Department of Education. The following descriptions of several studies completed or under way should illustrate the emphasis on "practicality" and indicate sources of data utilized.

Index of County Counsel Opinions Relating to Education

Each school district of Los Angeles County has been furnished an index of the six hundred opinions which have been issued since August, 1943,¹ by the Los Angeles County Counsel. The purpose of this index is twofold: first, to serve as a reference instrument to the complete opinions, copies of which are distributed by this office; second, to serve as an educational instrument. An analysis of each opinion is made by the administrative research consultant for summarization of highlights to be placed on "content" cards (5" x 8"). These content cards are arranged alphabetically under selected headings and are supplemented by numerous cross reference cards. Each opinion is separately treated as to content and cross reference cards. Identification (topic, date, district, name of district person to whom opinion was directed, name of County Counsel who rendered opinion) on the content cards facilitates reference to the complete opinion. There is an issue each fall of index cards pertaining to the opinions for the previous school year. With this issuance procedure, personnel concerned with opinions are obliged to maintain a "ready" file of current opinions. Opinions for which there are index cards may be

¹ August, 1943, was chosen as a logical starting date because at that time the code pertaining to educational affairs was changed both in name and numbering arrangement from the School Code to the Education Code. Thus, opinions rendered since August, 1943, make reference to code sections in the Education Code.

Dr. Michael E. DiPietro has since 1949 been Consultant in Administrative Research in the Office of the Los Angeles County Superintendent of Schools. Immediately prior to this he was for one year Regional Director with the California Commission on School Districts. Previous public experience includes services as a teacher and vice principal. He received the doctorate in Education at New York University in 1948.

maintained in regular file and it is recommended that a chronological system be employed so that persons who desire to read the full text of an opinion may proceed efficiently from the index to the file of opinions.

Multiple Sessions Study

Every year data are secured from the elementary school districts of Los Angeles County as to the number of kindergarten and elementary school pupils who are on multiple sessions as of October 31. This date has been chosen so that the information coincides with that received from districts for the October enrollment report. District returns recorded on a form distributed by the County Office indicate the number of classrooms needed as of October 31 to eliminate the multiple sessions. Information as to the number of classrooms needed to replace substandard facilities and to provide regular classrooms in place of such existing arrangements as the use of cafeteriums, rented property, etc., is not included in this survey.

Copies of the findings are distributed to all the elementary school districts for such use as district personnel may deem appropriate. To promote understanding of the nature of the school housing shortage, designated personnel in this office send out press releases and make talks before interested groups.

Salary Report of Certificated Personnel

This report, in tabular form, presents data pertaining to the number of certificated persons employed, other than teachers, and the annual salaries paid by the school districts of Los Angeles County. For this study, school districts are placed in four groups: elementary, high school, junior college, and unified. District enrollments as of October 31 are given both in alphabetical and rank order arrangement. Data for this compilation are secured from the reports of individual school districts submitted on State Department of Education Form No. R-1, "County and School District Report on Salaries of Certificated Employees for the School Year, 1955-56."

October Report of High School Principal: Curricular Offerings²

Each year the State Department of Education issues this "report" for completion by the high school principals. One copy of the completed report is maintained in the files of the county office. In order to provide interested personnel with a "picture" of prevailing practice as it pertains to a subject area, an analysis is made of the returns, and then tabulations are arranged for the guidance of superintendents, principals, department heads, curriculum personnel, curriculum associations, and county

² 1953—Science

1954—Mathematics and Industrial Arts

1955—English

office consultants as to the nature and extent of subject matter offerings in the various school districts.

Survey Regarding Number and Types of Certificated Personnel

As a result of requests received in this office from district personnel for normative data regarding the number, types, and titles of certificated personnel employed by various school districts, a survey has been conducted via questionnaire distributed from this office. Such data have been furnished district personnel, particularly chief administrators and governing board members, for their consideration of practices which prevail in the county and for whatever application they may deem appropriate to their own district situation. Information was provided for elementary, high school, and unified school districts.

For this survey, certificated personnel are understood to be those employees, other than teachers, who are working in a position requiring certification. Within the broad classification of certificated personnel, "administrative personnel" are those persons who are (1) superintendents, (2) deputy, associate, and assistant superintendents, and (3) principals and vice principals. "Service personnel" are those employees, other than "administrative personnel," who are working in a service area or areas.

In addition, for the "service personnel" a percent was given which represented an approximation of the amount of time spent in an area or areas by each employee. The questionnaire provided a basic list of the "service" areas and, while these areas were not precisely grouped, there was a general grouping which corresponded to such categories as instruction and curriculum, guidance and counseling, physical education, special education, and health education. Other areas were added by district personnel.

Study Regarding Non-Certificated Employees in Elementary School Districts

A study, presenting data in tabular format, has been completed pertaining to the number, salaries, and position titles of non-certificated employees in approximately seventy districts of Los Angeles County. Data for this study were secured from the non-certificated time cards which are maintained in the county office relative to retirement record keeping.

Adult Education Study

A study has been made of the curricular offerings in adult education in the school districts of Los Angeles County. The purposes of the study were to ascertain the extent of the offerings in adult education as indicated by the number of classes conducted³ in the various areas and to present the findings in an organized format to administrators concerned with adult

³ Approximately 6,000 adult education classes were conducted in Los Angeles County during 1953-54.

education programs. Twenty-three areas were selected to serve as generic headings for the specific course titles. An analysis was then made of the course approval forms⁴ received in the county office from the State Department of Education so that course titles could be placed under the most appropriate heading and the number of class sessions tabulated accordingly.

Study of Summer School Programs

As a result of requests from district personnel, a report was distributed to the school districts with information as to the program of studies offered by elementary school districts and unified school districts (elementary level) in summer schools conducted during 1955. Information included such items as (1) names of school districts, (2) grades involved, (3) opening and closing dates, (4) names of courses offered, and (5) length of class sessions in minutes. Data for this report were obtained from county office file copies of Form A-5-E (Report on Special Day or Evening Class or Summer School in Elementary District) submitted by the districts to the State Department of Education.

A limited number of sample copies of the studies listed in the report can be obtained on a loan basis by addressing the Division of Research and Guidance, Office of Los Angeles County Superintendent of Schools, 808 N. Spring St., Los Angeles 12. Attention: Dr. M. E. DiPetro, Consultant in Administrative Research.

⁴ Form A-20—Report on Courses in Classes for Adults.

Form A-20-A—Report on Courses in Crafts and in Physical Education in Classes for Adults.

There is now a permanent research advisory committee to work with the United States Commissioner of Education. It replaces an ad hoc committee which worked with the Commissioner for more than a year in laying the groundwork for a cooperative program of research in education. Members include Frank Hubbard, Assistant Executive Secretary for Information Services, National Education Association, and Ralph W. Tyler, Director, Center for Advanced Study in Behavioral Sciences, Stanford.

An Evaluation of the Child Study Program In Los Angeles County

GERTRUDE WOOD

The purpose of this study was to evaluate the Child Study Program available to administrators, supervisors, guidance personnel and teachers in school districts served by the staff of the Los Angeles County Superintendent of Schools.

This in-service education program originally was developed through the work of the American Council on Education, Commission on Teacher Education, beginning in 1938, under the chairmanship of Daniel A. Prescott. During the past eighteen years the program has continued to develop theoretically, operationally, and geographically. At the present time several thousand educators in eight or ten states are participating in the Child Study Program, nationally. There are five or six county and city school systems in California which operate such programs, involving over one thousand participants. Consultant and resource services for the program are obtained from the staff of the Institute for Child Study, University of Maryland.

Purposes of the Child Study Program

The Child Study Program is one example of several organized in-service education programs designed to help educators increase their knowledge of the principles of human development derived from the research of various sciences and to help them to apply more effectively this knowledge and understanding in their work with children. Implied or implicit in programs of this type are goals such as using a more scientific approach to understand behavior, becoming more accepting of one's self, of others, and of the environmental forces that influence all behavior, and applying new skills, knowledge and understanding to daily professional responsibilities. The three-year plan, organization, and procedures used in this Child Study Program have been described in other studies (1,3,6).

Dr. Gertrude Wood has served as Consultant, Division of Research and Guidance, Office of the Los Angeles County Superintendent of Schools, since 1945. From 1950 to 1955, her activities have included the coordination of the Child Study Program in districts served by the County Office. During the past year, while on leave, she has served as Assistant Professor and Consultant in Child Study, University of Maryland. Dr. Wood's Doctor's and Master's degrees were earned at the University of Southern California.

The Problem

The hypothesis examined in this study was that a relationship exists between the amount of Child Study experience of teachers and their competency in certain professional skills, attitudes, understanding and knowledge. The general hypothesis was examined by attempting to answer the following questions:

1. Are there differences among the teachers according to the number of years of Child Study experience, in their attitudes toward colleagues, pupils, parents, or classroom organization?
2. Are there differences among teachers in their use of guidance and case data to better understand and guide children's behavior?
3. Are there differences in the soundness of interpretation of the causes of behavior?
4. Are there differences in the soundness of procedures recommended for a child's education and guidance?
5. Are there differences among the teachers in their attitudes of acceptance of self, others, and the environment?
6. What do teachers find meaningful and what dissatisfactions are experienced in the Child Study Program by the participants?
7. Are there relationships between the teachers' performance on the instruments used in this study and other factors such as age, education, teaching experience or marital status of the teachers?

Procedure

The sources of data for this study were the responses of teachers in Los Angeles County to certain instruments. The instruments that were used were *The Case of Mickey Murphy: A Case Study Instrument in Evaluating Teachers' Understanding of Child Growth and Development* (2), Wandt's *Teacher Opinion Scale* (5), Reed's *Sentence Completion Test* (4), a simple reaction sheet developed to obtain subjective appraisals by the teachers of their work in the Child Study Program, and a biographical information sheet.

Approximately three hundred teachers participated in this evaluation study. The total group was divided into sub-groups on the basis of the number of years' experience in the Child Study Program, that is, no experience, one year, two years, and three years experience. The analysis of variance technique was used to test for over-all difference among the four groups. Comparisons were then made between these groups, taken two by two, by finding Chi-square values and probabilities.

The influences on teachers' performances of additional factors were tested also by the analysis of variance technique and Bartlett's test for homogeneity of variance. Other factors that were considered possibly

related to performance were age, education, numbers of years' teaching experience, and marital status.

Findings

Generally positive answers were suggested by the data for the first six questions raised in this study concerning the relationship of the number of years of Child Study experience and teachers' responses on the tests used.

1. Findings from the Mickey Murphy test showed an over-all significant difference (at the .01 level or better) among the four groups of teachers, no child study, one year, two years, and three years experience, in the adequacy of interpreting case data, as well as in making sound recommendations for child guidance and educational procedures. Test performance favored those groups of teachers, positively and directly, in relation to the increased number of years' experience in the Child Study Program.

When inter-group comparisons were made to see where the greatest difference might exist, it was found that skill in interpreting case data was significantly (.01 level) more adequate among the second and third-year child study teachers than among the groups with one year or no child study experience. The third-year group exceeded the second-year teachers in this respect.

Although an over-all difference among the four groups was found to be significant, inter-group comparisons indicated that only the third-year child study teachers were significantly more competent in making sound recommendations for child guidance and educational procedures.

All child study teachers, regardless of the extent of their participation in the program, were significantly more capable in judging the adequacy of case data and case study procedures, when compared as a whole with the teachers not in Child Study. However, no significant differences were found in this skill among the different year levels of participants in the program.

In general, it was found that one or more year's participation in the Child Study Program was related to the greater ability of the teachers in this study to draw sound conclusions and to make sound decisions, with proper consideration for accuracy and completeness of data; and that these skills appeared in relation to each additional year of such in-service education.

When factors other than child study experience (*i.e.*, age, education, teaching experience, and marital status) were used as a basis for comparing differences in performance on the Mickey Murphy test, no significant differences were found on any part of this test.

2. When an analysis was made of responses on Wandt's Teacher Opinion Scale significant (.05 level) differences were found among the four groups of teachers in their attitudes or opinions toward administrators, other teachers, and so-called democratic classroom procedures. The teachers

who had completed two years in the Child Study Program expressed the most positive attitudes toward administrators and other teachers. Third-year teachers expressed the most positive attitudes toward democratic classroom procedures.

No significant differences were found among the attitudes expressed by the teachers when they were grouped according to age, education, or teaching experience, and when child study participation was disregarded. However, those teachers whose marital status was indicated to be divorced or separated expressed significantly (.05 level) more positive attitudes toward parents.

3. Three groups of teachers, each of whom had completed one, two, or three years in the Child Study Program were given Reed's *Sentence Completion Test*. On the basis of performance on this instrument, teachers who had completed three years in the program were considerably and significantly (.01 level) more accepting of themselves, of others, and of the environment, than the other two groups. This direction and the degree of significant difference occurred between the third-year teachers and the second-year, as well as between the third-year and the first-year group. No significant difference was found between the first-year and second-year groups on this test.

4. Personal comments by teachers recorded on reaction sheets suggested a wide range of meaningful outcomes from work in the Child Study Program:

One-half of first-year and second-year teachers and two-thirds of the third-year groups reported that this in-service education program helped participants to develop more objective attitudes toward human behavior and the causes of behavior.

An increasingly higher percentage of teachers, year level by year level, recognized the need for more adequate information about a child in order to understand and guide his behavior.

Over one-fourth of the teachers made specific reference to modification of their own classroom methods.

Nearly two-thirds of the teachers felt they understood all children better through the intensive study they had made of a few children and that they had developed new skills for guiding children toward more positive adjustment.

About one-third of the teachers reported that they had learned specific skills, developed greater confidence and more appreciation for working with parents in individual and group conferences. New skills and confidence in working with parents were reported chiefly by first-year child study teachers, whereas the feeling of value and appreciation for working closely with parents was reported by more second and third-year teachers.

The development of professional skills in inter-staff (administrative, supervisory and instructional) working relationships and increased professional morale were pointed out by nearly one-half of the teachers as an

outcome of the Child Study Program functioning in their schools. There was a slightly higher percentage of teachers in each group responding in this way in direct relation to longer experience in the program.

5. Recommendations for improving the Child Study Program may suggest certain areas of dissatisfactions.

Nearly one-third of the total group responding expressed a need for increased tempo and accomplishment in individual study group meetings. This comment occurred most frequently among first-year teachers and decreased in frequency in the second and third-year groups.

Almost one-fourth of the group expressed a need for more adequate scientific information about human development and suggested that more help might be given through guided professional reading and lectures by consultants.

More than one-third of those participants who responded recommended that the Child Study Program be expanded so that more teachers, supervisors and administrators would be able to work in the program and about one-fourth suggested that a similar type of program be developed for parents.

Conclusions

1. The evidence from the methods used in this study suggest that a relationship exists between the extent of participation in the Child Study Program and certain professional skills, attitudes, and understandings. Each of the three-year levels of this program seems to contribute in some unique way. Learning professional case study skills and using the scientific method appeared significant among first-year child study teachers, when contrasts were made with teachers not in the program. Differences in attitudes and application of skills were found to be more related to second-year teachers than to the first-year and non-child study groups. Second and third-year child study teachers seemed to be characterized by appreciation and deeper understanding of the importance of human relationships—between teachers and children, between professional colleagues, and between parents and school personnel.

2. Valuable suggestions for the improvement of the Child Study Program in Los Angeles County were made in the subjective statements of the teachers participating in this study. Many of these suggestions have now been incorporated into the operation of the program.

3. If skills in studying child behavior, application of human development principles and a deeper understanding and appreciation of human relationships contribute to more effective teaching and to mental health practices in public schools, then this three-year Child Study Program would seem to be a valuable in-service education program.

BIBLIOGRAPHY

1. American Council on Education, *Helping Teachers Understand Children*. Washington, D.C.: The Council, 1945. 468 pp.
2. Baller, Warren R., *The Case of Mickey Murphy: A Case Study Instrument for Evaluating Teachers' Understanding of Child Growth and Development*. Lincoln, Nebraska: University of Nebraska Press, 1943. 6 pp.
3. Prescott, Daniel A., "Communicating Knowledge of Children to Teachers," *Child Development*, 19:15-24, March-June, 1948.
4. Reed, Harold J., "An Investigation of the Relationship Between Teaching Effectiveness and the Teachers' Attitude of Acceptance," *Journal of Experimental Education*, 21:277-331, June, 1953.
5. Wandt, Edwin, "The Measurement of Teachers' Attitudes Toward Groups Contacted in the Schools," *Journal of Educational Research*, Vol. 46 (October, 1952), 113-122.
6. Wood, Gertrude, "An Evaluative Study of the Child Study Program in Los Angeles County." Unpublished Doctor's Dissertation, University of Southern California, 1955. 372 pp.

How to Visit Colleges is the title of an attractive and practical handbook for high school seniors and their parents. It is published by the National Vocational Guidance Association. It may be obtained from the Association, 1534 O Street N.W., Washington 5, D. C., for twenty-five cents. Discounts are given for large orders. High school counselors should look into the possibility of their use in guidance work.

* * *

The Financial Research Section of the Budget Division of the California State Department of Finance has just issued a new report on projected enrollments in California schools from 1956 to 1970. This report predicts that new pupils will be added to present enrollments at the rate of 13,600 per month for the next five years. This will consist of a monthly gain of 9,600 in elementary schools and 4,000 in high schools. By 1970, California will have 162 elementary pupils for every 100 it had in the fall of 1955, and 234 high school students for each 100 enrolled in 1955-56.

Sep

The Student Survey: A Multi-Purpose Guidance Instrument

HAROLD J. REED

Administrators, curriculum planners, counselors, and teachers frequently need to know the characteristics, attitudes, and plans of their students. To determine trends the student population needs to be sampled systematically.

Recently a Los Angeles County junior college became interested in determining the effectiveness of its educational program as a result of rapid population growth and economic changes, a situation not unique today. A community that had been rural and agricultural was now suddenly becoming urban and industrialized. A scheduled accreditation visit provided another reason for the staff to ask such questions as, "Have the needs of the students changed? Is the purpose of the junior college program the same as it was a few years ago? What percent of our student body is relatively new to the district? Will those served by the school continue to live in the district? Who are the students that will be coming to our school? What are they like?"

The Junior College Survey

Procedures for surveying potential students were carefully analyzed by a Steering Committee. Instruments were examined. Other schools which had conducted similar studies were consulted. The steps taken in the planning and operation of the survey are reported in this paper as being more significant than the results obtained. Answers were sought to problems in the district. Similar problems might exist in other schools and the same items might be used, but results may or may not be comparative.

Organization. Several committees were organized by the Steering Committee. The Student Personnel Services Committee was assigned as one of its duties the responsibility for surveying graduates of feeder high schools. The high schools were glad to cooperate because the survey could be used to evaluate the high school program as well as to alert the junior college to the characteristics of the incoming students.

Dr. Harold J. Reed is Consultant in Research and Guidance, secondary level, in the Office of the Los Angeles County Superintendent of Schools. Previously he was a teacher and also Director of Guidance in the Pomona City Schools. Non-school experience includes Personal Counselor with the Veterans Administration, Training Supervisor with the U. S. Navy Shipyard, and Training Officer with the U. S. Air Forces. He received the M.A. degree from Claremont College and the Ed.D. in Educational Psychology from the University of Southern California.

Purpose. Answers to "Why conduct the survey?" would determine the purposes and general areas of investigation. It was decided that (a) the characteristics of incoming students needed to be analyzed, (b) the effects of a rapidly-developing community on the students' needs should be known, (c) an evaluation of the high school program by graduates would be helpful to both high school and junior college administrators and staff, and (d) a record of individual attitudes, plans, and personal data would assist counselors.

Areas of Investigation. Maximum coverage within the time limits of thirty to forty minutes was the goal of the committee. Broad areas to be examined included:

- a. Personal data such as age, sex, marital status, children, marital status of parents, with whom student was living, and a number of dependents in the family.
- b. Employment and earnings.
- c. Length of residence in district, previous district if present residence was less than three years, and planned residence after graduation.
- d. Educational level of parents and older siblings.
- e. High school major, estimate of high school grades, educational plans including parents' attitudes toward plans, and the strongest influences in making educational and vocational plans.
- f. Evaluation of guidance and activity services; and the two subjects which were considered most valuable, least valuable, helpful in achieving a goal, and which they wished they had taken.
- g. Military service plans of men.
- h. Physical defects present and their possible influence on educational and vocational objectives.
- i. Vocational goals; occupations of parents; and whether student had made occupational selection and, if so, what it was.

Item Construction. For ease of administration and tallying, intervals and possible answers were used. The subject was able to check every item including evaluation of subjects and occupational choices. A great deal of time was saved in administration when only check marks were required. It was also felt that reliability would be increased if there were lists of all school subjects as well as the one hundred occupations in which practically all employed California workers are engaged. It was recognized that most similar instruments require only a write-in occupation, but tallying them even by major classifications of the *Dictionary of Occupational Titles* is frequently difficult, e.g., engineer or office worker.

Coding the responses permitted a punch card operator to make a permanent record of each subject and to facilitate tallying. Only the evaluation of school subjects and occupations items required hand scoring. The punch card record included the student's identification number, grade point

averages, and other data necessary to run correlations between items. Such a procedure obviously required the students' names, but a pilot run and reactions of students during administration as noted by the teachers indicated no negative effects.

Pilot Study. The next step in the project was to administer the survey to a sample group. Four junior college counselors through oral interviews determined which items were not easily understood, and also if each item contained all possible alternatives. With this important step taken, the survey form was ready for reproduction and administration.

Administration of the Survey. Although the purpose of the project was to examine the twelfth grade class, the committee decided to include the junior college graduates. All items were appropriate to both groups with the exception of the high school subject evaluation. However, the two-year interval permitted a follow-up type of appraisal, and a comparison on all items between the two groups.

The survey was administered by senior problems teachers to all seniors a week before graduation. Approximately eighty per cent of the junior college graduating students also participated.

Compilation of Data. The Statistical Section of the Research and Guidance Division in the Los Angeles County Schools Office coded, punched, and tallied the answers. For reporting purposes response frequencies were converted into percentages. The parents' occupations and students' occupational plans were grouped according to the major occupational fields. It was then possible to compare the percentages with census reports to determine significant characteristics.

Findings

Some of the findings are reported here as interesting and suggestive for further investigation.

1. The father's educational level was lower than that of the mother or of the older brother or sister. Older brothers had more education than older sisters. The mother's educational level seemed to be a significant factor in the educational level of the children.

Students Reporting Other Family Members Who Completed Education Beyond High School

Family Member	Percentages Reported by Students Surveyed	
	By Junior College Students	By High School Students
Father	15 per cent	16 per cent
Mother	38 per cent	18 per cent
Older Brother	64 per cent	28 per cent
Older Sister	43 per cent	21 per cent

2. Ninety-six per cent of the students estimated their grades to be average or higher.

3. Educational and vocational counseling were considered adequate by approximately seventy per cent of high school and junior college students. Study techniques, job placement, and health services were considered to be adequate by only fifty per cent.

4. There appeared to be strong approval of students' plans by parents ninety per cent in twelfth grade and ninety-six per cent in junior college.

5. Male students who planned to wait until drafted or to get a college deferment were eighty percent in the high school and eighty-seven percent in the junior college.

6. Forty-five per cent of the junior college students were uncertain about their vocational objectives as compared with twenty-nine per cent of the high school students. It was also noted that high school students' choices were more realistic than those in the 14th year when compared with the 1950 census figures for employed workers in California. This difference was most apparent in the professional, managerial, clerical, and service worker classifications. A selective factor was probably responsible for this difference although it is believed to be more significant at the school being reported than in other similar institutions.

7. Persons such as parents, friends, and teachers had more influence on high school students than on junior college students—fifty-six per cent and thirty-six per cent, respectively.

8. Less than forty per cent of both groups intended to remain in the community after they finished their education. Thirty-five per cent had resided in the district less than three years.

9. English, Senior Problems, and Typing were reported most frequently as most valuable subjects and most helpful in achieving goals. Of these three, only English was considered as a least valuable subject.

10. Exclusive of English and Senior Problems, vocational subjects were considered most valuable. An examination of enrollments in the required and elective subjects might make the vocational subjects appear to be more significant than they actually are.

11. Twenty-five percent of both groups plan to terminate their education at graduation.

Use of the Survey

The results of the survey were analyzed by the Personnel Services Committee and the County Schools Consultant. Conclusions and inferences were listed and the whole project was reported to the high school and junior college faculties. The junior college Course of Study Committee made much use of the report. The Personnel Services Committee subsequently revised the survey form for use as a personal data record on all incoming students.

"Estimated True Growth" Lord's Equations Applied to Reading Test Data

JOHN CAFFREY

New regression equations, due to Frederick Lord (Educational Testing Service, Princeton, N.J.), provide estimates of "true growth," when scores on the same or parallel tests given before and after a learning interval are available, and for estimating the reliability of these gains. A full treatment, with derivations, will be published shortly by Lord; permission to use and present these equations, available now only as a draft for ETS use, has been granted by Lord. Simplified equivalents of certain of his equations are presented here, but no attempt is made to provide anything more than computing procedures and illustrations.

For 360 randomly selected Los Angeles County children, 1954 and 1955 reading scores (vocabulary, comprehension, and total reading) on two forms of the *California Achievement Test* were analyzed. The entering data for the equations are the sample means (\bar{X} , \bar{Y}) and variances (s_x^2 , s_y^2), covariances (s_{xy}) and correlation coefficients (r_{xy}), and the reliabilities (r_{xx} , r_{yy}) and error variances (s_e^2) of the test scores.

Computing sums and other entering data, as well as the regression equations, are given below as an illustrative check on the computational procedures. As Lord points out, one should note with care the reliabilities of the estimated true gains (\hat{g}). Most revealing is a graphic presentation (not illustrated here) with "gain" or "loss" lines plotted for selected \hat{g} by equation (10). Each diagonal line is plotted to represent a certain estimated true gain (or loss) for X (earlier) and Y (later) scores intersecting at or between these lines. It should be noted that there are often surprising differences between the *apparent* growth (arithmetical difference between two scores) and the estimated "true gain" computed by equation (4). A line of "apparent zero gain" often crosses a region from positive to negative estimated true gains!

These estimates can be applied readily in the longitudinal processing of test data; the process offers a healthy antidote to the usual growth-tracking (or growth-guessing) approach via arithmetical differences between scores. Test data punched in IBM cards can be processed quickly in simple IBM computing machines (e.g., the 602-A), using header cards contain-

A note about Dr. Caffey appears at the end of this article.

ing the regression constants; when this is not possible, the use of a graph (equation [10]) is both simple and sufficiently accurate for all except precise research applications. Lord cautions those interested in practical applications of this technic that r_{gg} (reliability of the \hat{g}_a estimates) below .60 should discourage one from an exaggerated faith in the estimates—though the latter are still preferable to apparent differences as estimates. In the accompanying illustration, then, one might not find much value in using the regression equations for the vocabulary test data, while the $r_{gg} = .825$ for the comprehension test estimates is satisfactory.

gg

Definitions and Computing Equations

The reliability of test X is defined as

$$r_{xx} = 1 - \frac{s_e^2}{s_x^2}. \quad (1)$$

The error variance s_e^2 is assumed to be constant for both of the identical or parallel tests, and the reliability of one form is therefore taken as a function of the variance s_x^2 of that form. (2)

The regression terms are defined as follows:

$$b_{gyx} = \frac{s_e^2 (s_y^2 + s_{xy}^2)}{s_x^2 s_y^2 - s_{xy}^2} - 1 \quad (2)$$

$$b_{gxy} = 1 - \frac{s_e^2 (s_x^2 + s_{xy}^2)}{s_x^2 s_y^2 - s_{xy}^2} \quad (3)$$

Properly, the notation should employ γ rather than \hat{g} throughout, but the distinction is more important in Lord's original paper and can be dispensed with here for the sake of typographical convenience and computer morale.

The estimated true gain for a student a whose scores on parallel tests X and Y are X_a and Y_a is computed from

$$\hat{g}_a = b_{gx,y} X_a + b_{gy,x} Y_a + C \quad (4)$$

in which

$$C = [1 - b_{gy,x}] \bar{Y} - [1 + b_{gx,y}] \bar{X} \quad (5)$$

The variance of the estimated true gains, and the correlation between the estimates and original X and Y scores,

$$s_g^2 = s_x^2 + s_y^2 - 2s_{xy} - 2s_e^2 \quad (6)$$

$$r_{gx} = \frac{s_y r_{xy} - s_x r_{xx}}{s_g} \quad (7)$$

$$r_{gy} = \frac{s_y r_{yy} - s_x r_{xy}}{s_g} \quad (8)$$

will be inserted in the following equation to provide an estimate of the reliability of the \hat{g}_a 's.

$$r_{\hat{g}\hat{g}} = \frac{r_{gx}^2 + r_{gy}^2 - 2r_{gx} r_{gy} r_{xy}}{1 - r_{xy}^2} \quad (9)$$

The plotting equation for the graphic estimation of g is

$$Y_a = \frac{\hat{g}_a - C}{b_{gy,x}} - \frac{b_{gx,y}}{b_{gy,x}} X_a \quad (10)$$

Note: One check on the accuracy of the computations up through equation (5) is provided by the fact that when the sample means \bar{X} and \bar{Y} are entered in equation (4), the \hat{g} obtained is equal to the difference $\bar{Y} - \bar{X}$

between the means. Hence, $\bar{g}_a = \bar{Y} - \bar{X}$, within rounding error.

Illustration of the Use of the Equations

(N = 360)

1954 Test Data	ΣX	ΣX^2	\bar{X} Mean	Variance	s_e^2	r_{xx}	ΣXY	s_{xy}
Vocabulary	16841	862965	4.67805	2.092859	.2500	.88	973006	1.995494
Compre- hension	18055	957549	5.01527	1.449598	.1521	.90	1086015	1.235147
Total	17406	900042	4.83500	1.628465	.1521	.91	1013517	1.590686

1955 Test Data	ΣY	ΣY^2	\bar{Y}	s_y^2	s_e^2	r_{yy}	r_{xy}
Vocabulary	19268	1144932	5.35222	3.166178	.2500	.92	.7751
Compre- hension	20770	1262810	5.76944	1.796556	.1521	.92	.7653
Total	19781	1168923	5.49472	2.284456	.1521	.93	.8247

$$(V) \quad \hat{g}_a = .6135Y_a - .5120X_a - .2143 \quad Y_a = \frac{g + .2143}{.6315} + .8346X_a$$

$$(C) \quad \hat{g}_a = .6214Y_a - .5725X_a + .0403 \quad Y_a = \frac{g - .0403}{.6214} + .9213X_a$$

$$(T) \quad \hat{g}_a = .5885Y_a - .5046X_a - .1342 \quad Y_a = \frac{g + .1342}{.5885} + .8574X_a$$

(V)	$s_g^2 = .7680$,	$r_{gx} = .1208$,	$r_{gy} = .5060$,	$r_{gg} = .4405$
(C)	$= .4717$,	$= -.1367$,	$= .4733$,	$= .8248$
(T)	$= .4273$,	$= .0913$,	$= .5403$,	$= .6842$

Graphic note: For the (C) = comprehension test data, plotting Y for the gain line for $g = .4$, Y would equal $.5788 + .9213X$; various values (only two would be needed to plot a straight line) of X are inserted in this, and the corresponding Y values found indicate the height of the ordinate for the selected X . Any point along such a line would indicate an estimated true gain of $.4$ (years) for the actual X and Y scores intersecting along it.

**Application of the Three Equations Above to Scores of
Selected Children**

(using the same scores for all three tests)

Student	X = 1954	Y = 1955	Y - X	g (V) a	g (C) a	g (T) a
A	6.2	6.8	.6	.8	.7	.7
B	6.4	5.0	-1.4	- .4	- .5	- .4
C	6.0	5.4	- .6	.0	.0	.0
D	4.6	6.0	1.4	1.1	1.1	1.1
E	4.8	4.7	- .1	.2	.2	.2
F	6.0	6.0	.0	.4	.3	.4
G	6.0	5.7	- .3	.2	.1	.2
H	4.0	6.3	2.3	1.6	1.7	1.6
J	6.3	4.0	-2.3	-1.0	-1.1	-1.0
K	5.0	5.0	.0	.3	.3	.3

Thus student E, who shows an apparent loss of .1 years of grade placement, shows an estimated true gain of .2 years on all three tests. Student F, who shows no apparent gain, has actually (according to the estimate) gained .4 or .3 years on the tests. Student J, who appears to have lost 2.3 years, has an estimated loss of a year or slightly more. Note that student H, whose apparent gain is exactly equal to student J's apparent loss, is estimated to have gained 1.6 to 1.7 years.

Note For the Incredulous

Those who find it difficult to believe that an apparent loss may actually represent an *estimated gain* should consult Lord's original paper—and should recall, further, that an essential entering statistic for these equations is the error variance of the test. The effect of test unreliability is often overlooked or forgotten in analyzing apparent (*i.e.*, simple arithmetical) differences in scores before and after learning intervals.

Dr. John Caffrey has for the past year been Assistant Director of the Los Angeles Office of Educational Testing Service and is now temporarily Acting Director. Immediately prior to this he was affiliated with the Los Angeles County Superintendent of Schools office as Educational Statistician, following varied teaching experiences in California at Sequoia High School in Redwood City, Sacramento State College, San Jose State College, Stanford University, and the University of Southern California. He received the Ph.D. degree from the University of California at Berkeley. Dr. Caffrey is known for his research in the field of auding (listening), and has contributed to the ETS listening comprehension tests.

The Columbia Mental Maturity Scale and the Stanford-Binet Test with Cerebral Palsied Children

BEATRICE LANTZ and RUTH WOLF

The Columbia Mental Maturity Scale is of special interest to those who give psychological tests to children who are physically handicapped. Its directions are simple and easy to give. The child points to the correct answer. The fifteen to twenty minute time to complete the test would seem to eliminate factors of fatigue or boredom. The test is easy to score. It is put up in compact kit form which is neither too awkward nor too heavy.

The Cerebral Palsy Unit of the Paramount Unified School District has given the Columbia Mental Maturity Scale and the Stanford-Binet Test, Form L, to 33 of their children in this Unit. The cerebral palsy involvements of these children were so varied that no one type could be isolated for separate analysis.

The children in this group ranged in age from 3 years 9 months through 13 years and 10 months. Seventeen of these were boys and 16 were girls.

TABLE I

Results of Columbia Mental Maturity Scale and Stanford-Binet with Cerebral Palsied Children.

N = 33 (17 boys and 16 girls)

	Mean IQ	St. Deviation	IQ Range	MA Range
CMMS	96.40	31.4	43 - 172	3.2 - 16.3
Stanford-Binet Form L	82.99	19.3	42 - 119	3.1 - 13.10

A correlation of .62 was secured between the CMMS and the SB mental ages. Table I reveals a consistent tendency toward higher IQs, hence higher mental ages on the CMMS.

Ruth Wolf is Director of Pupil Personnel Services in the Paramount Unified School District where she has served previously as teacher, principal, and school psychologist. She is a graduate of San Jose State College and holds the B.S. degree from the University of Southern California. She has done extensive specialization work at U.S.C. and other institutions, and is responsible for the special education program at Paramount.

A note about Dr. Beatrice Lantz appears on page 153.

The mean IQ secured on the CMMS is significantly higher than the mean Stanford-Binet IQ. The standard deviation of the CMMS is significantly greater than that of the Stanford-Binet. Table II examines the IQ variations between the two tests.

TABLE II

Variations of IQs Obtained from the Columbia Mental Maturity Scale and the Stanford-Binet Test.

<i>Variations in Scores</i>	<i>Number</i>	<i>Per Cent</i>
CMMS and SB within 10 IQ points	13	39.5
CMMS and SB within 11-20 IQ points	10	30.3
CMMS and SB within 21-31 IQ points	8	24.2
CMMS IQ 45 points above SB	1	3.0
CMMS IQ 95 points above SB	1	3.0

Thus roughly 40 percent of this group would fall within the same ability level classifications on the two tests. Another 30 percent would vary by one ability level, and 24 percent would vary by two ability levels.

The two extreme deviants were both girls. One was 7 years 1 month old and the second 9 years and 3 months old at the time of the CMMS test. The first secured a SB IQ of 87 and a CMMS IQ of 132. The second secured a SB IQ of 79 and a CMMS IQ of 176. The mother of the second child attributed her excellence of response to her unusual interest in and experience with jigsaw puzzles. In both of these children their learning level of functioning approximated that of the Stanford-Binet IQ.

There was no relationship between the physiological diagnosis of impairment and the extent of variation between the results on the two tests. Nor were any patterns found which suggested that chronological age, sex or IQ level were related to test variations.

It was the opinion of the teachers and therapists in the Cerebral Palsy unit that the Stanford-Binet Test provided the most reliable predictive instrument of educational and physical rehabilitation learning level and rate.

Related Studies

The standardization population of the California Mental Maturity Scale consists of 957 "presumptively normal" children of ages 3-12 years. A correlation of .78 was reported with Stanford-Binet responses of all age groups. CMMS standard deviations at the lower age levels were greater than those of the SB.

Gallagher, Benoit and Boyd compared the CMMS, the SB, and the Leiter International Performance Scale on an atypical population of brain

damaged mentally retarded children who were residents of the Dixon State School in Illinois. There were 50 in this group, 26 boys and 14 girls, with chronological age range from 7 years and 4 months through 13 years and 10 months. They found the mean IQs of the CMMS (57.34 with standard deviation of 15.00) to be significantly higher than the mean IQs of the Stanford-Binet (48.45 with SD 7.36) and the Leiter International Performance Scale (45.50 with SD 11.41). The CMMS also had the greater variability.

In this group of brain damaged mentally retarded children, 30 percent deviated 15 IQ points or more in CMMS-SB IQs. The cerebral palsy group of the present study covered a SB range from 42-119 with 45.5 percent of this group showing a CMMS-SB variation of 15 or more IQ points.

Summary

The Columbia Mental Maturity Scale should be used, as yet, as an experimental instrument. The above studies suggest that, on the average, significantly higher IQs and greater variability may be expected when using the Columbia Mental Maturity Scale than when using the Stanford-Binet or the Leiter International Performance Scale.

REFERENCES

1. Gallagher, James J.; Benoit, E. Paul; and Boyd, Herbert F. "Measures of Intelligence in Brain Damaged Children." *Journal of Clinical Psychology*, 12:69-72 (Jan. 1956).
2. Lorge, I.; Blum, Lucile; and Burgemeister, Bessie. *Manual for the Columbia Mental Maturity Scale*. Yonkers-on-Hudson: World Book Co., 1954.
3. Terman, L. M. and Merrill, Maud. *Measuring Intelligence*. New York: Houghton Mifflin Co., 1937.

A Suggested Framework For Conceptual Research

ROBERT C. McKEAN

Research workers in education have tended to over-emphasize fact gathering. Witness the disproportionate number of normative-survey studies being made by students in graduate schools today, instead of searches for creative solutions to problem situations in our schools. Some time ago W. H. Cowley¹ commented on this over-emphasis and urged that our attention be directed to an activity that is antecedent to factual research, an activity that he termed "conceptual research." In a recent article² he contrasted the "factualist" with the "conceptualist" and suggested that, for the most part, the latter either (a) "organizes facts already in hand" or (b) "critically appraises existing concepts."

It seems apparent that renewed conceptual effort is needed but, in order to counteract the present emphasis on uninspired fact collecting, this effort might well focus upon the search for new problems, new points of view, new concepts or, more accurately, a creative synthesis of old concepts. Such activity could properly concern itself directly with the first aspect of problem solving, that of seeking and formulating the problems themselves.

With this goal in mind, exploratory tryout sessions were held with groups of the writer's colleagues and graduate students. As a result of these experiences, it was felt that group conceptual research represented a process which could be tentatively described and that some of the conditions favorable to its operation could be identified. The following suggested framework and descriptive statements represent a kind of operational description of what the writer feels to be conceptual research as applied to education.

¹ "Two Kinds of Research," *California Journal of Educational Research*, 5:11-12, January, 1954.

² "The Need for Conceptually Oriented Research in Education," *California Journal of Educational Research*, 7:61-66, March, 1956.

Dr. Robert Claud McKean is Assistant Professor of Education at San Francisco State College, a position to which he came in 1955. Immediately prior to this he was Curriculum Consultant in the Office of the Tuolumne County Superintendent of Schools. He has taught at the University of Colorado and in Oregon high schools. He received the Ed.D. degree at the University of Colorado in 1954.

The Operational Framework

1. A group of *human resources* is invited to come together to discuss, to focus their thinking on a topic. Individuals are selected in order to bring significant backgrounds of knowledge and experience to play in a small discussion group situation.

2. A *point of attack* is agreed upon or previously chosen. This is not a problem or topic in the customary sense—the members of the group only agree to *start here*—for the very statement of a problem too often structures the answer. This concept seems necessary so that, as the discussion progresses, it may be deflected from the area in which it began if the new direction appears promising.

3. The establishment of a *working relationship* is highly important. An attempt should be made to promote a shifting leadership, for a single leader may inhibit the flexibility necessary for conceptual progress. The suspension of prestige loaded titles and the establishment of a first name relationship would seem desirable.

4. *Recognition of the goal* is probably the most vital and difficult factor. The aim of conceptual research is to search for concepts which will open up new and creative approaches to educational problems and to explore them. As these appear they should be pointed up and recorded, for these are the fruit of conceptual research.

Answers at this stage are tentative only and no pressure should be exerted upon the group to come up with specific recommendations. Final evaluation of the worth and practicability of the ideas and approaches which appear is left to subsequent traditional research.

This development of some degree of mind set, emphasizing the formulation of problems and new and creative approaches to the problems as the central aim of conceptual research, probably represents the most difficult initial task facing the group.

5. The *culmination* or *end point* of the research activity occurs when a significant number of the group feels (a) the discussion is stalled—producing little or no results or stimulation, (b) the discussion has exhausted the human resources or the topic, or (c) a satisfying number of seemingly creative results have appeared. It seems desirable to collect the problems, ideas and concepts jotted down by each member and to duplicate them for distribution to the group to further enhance the satisfaction of conceptual research.

A Specific Example

An example might be given to illustrate part of the process and some of its possible results. A group, consisting of an assistant superintendent of schools, a principal, two school psychologists, a teacher, and a college

instructor, was engaged in discussion. At one point the discussion shifted to the subject of multiple-sessions in the schools.

The suggestion was made that a different point of view be taken: That, educationally, double-sessions are good!

In exploring the implications of this statement the group came up with a number of questions and possible research problems, many of which were refined as the discussion progressed; for example:

1. *What could be offered to the students during the half day they were not in the classroom that would be educationally rewarding?*
2. *What other educative agencies in the community might be enlisted in setting up a program during this half day?*
3. *Could not the churches, Boy/Girl Scouts, YMCA-YWCA, PTA, chamber of commerce, museums, hospitals, service clubs, Red Cross, civil defense authorities, law enforcement, etc., have some part in this?*
4. *Could we enlist the aid of our older, retired people (a wasted resource at present) to help plan, coordinate, and carry out the out-of-school program? How could their rich backgrounds of experience be shared with our youth?*
5. *What activities could be set up with the aid of all these groups that will offer satisfying and worthwhile educational experiences to the students? (Field trips, work experience, study groups, library research, civic improvement, reading and story hours, recreational programs, information service, etc.)*
6. *How might this out-of-school program be administered? To what degree should the school be responsible for the out-of-school experiences?*
7. *Should attendance be required? Voluntary?*
8. *Could meeting space be provided in little used buildings in the community, such as the churches, veterans' memorial halls, etc.?*
9. *What total benefits (to schools? to the children?) might accrue?*
10. *Would there be any bad effects from this program?*
11. *Might this not suggest actually a better kind of education for our young people than the present kind?*

Thus, in exploring a new point of view, the mutual stimulation of individuals manipulating ideas resulted in a satisfying number of new questions and problems, some of which might be the subject of other, more traditional research methods.

Creative Approach Needs Exploration

As described, the success of conceptual research appears to hang upon the power of relatively unstructured discussion to stimulate creative conceptualization in the human resources present. Many questions remain to be explored, for example: What is the most productive combination of human resources—individuals with similar or widely varied backgrounds? Should the point of attack be highly specific or general in nature? What is the best way to record the conceptual outcomes—each person jot down his notes, use a tape recorder, etc.?

Research activity viewed in this light actually might better be called "search," for its aim is the discovery and exploration of new concepts, questions, and problems in education. Although the discussion here is admittedly tentative and exploratory, it does suggest, it would seem, a skeleton framework for a process with significant potential for furthering creative approaches to the problem situations facing us in the schools.

Book Reviews

THE NEW TEACHER COMES TO SCHOOL

GLEN E. EYE and WILLARD R. LANE

New York: Harper and Brothers, 1956. 376 pages. \$4.50.

"Can the teaching profession consistently issue a cry for more teachers while at the same time mistreating their newcomers with the heaviest teaching load, the least desirable classrooms, the extra activities that no one else wants? Can we afford to throw the newcomer into the position of having to fight for his professional life because of cliques in the school where members of each clique want to test out the new teacher to see where and how he stands with the members of the community, the other members of the teaching staff, and the administrators?"

The authors of this book have undertaken to provide some practical suggestions for implementing a "no" answer to the question asked in the paragraph quoted above. In the first chapter, they survey the profession of teaching generally with respect to what is expected of its members and of the schools in which they work. In subsequent chapters, they consider the problems peculiar to being a new teacher and the responsibilities of both the newcomer and the oldtimer for the successful induction of new members into the profession. The responsibilities of teacher training institutions, administrators, fellow teachers, and the community in which the school is located, are all discussed in separate chapters. The book concludes with a discussion of ways of planning a practical program for the induction of new teachers into a school situation.

An induction program can, according to the authors, be divided into four phases. These are: (1) induction activities leading to the signing of the contract; (2) induction activities after the contract is signed, but before the teacher reports for duty; (3) induction activities when the teacher reports for duty; and (4) induction and supervisory activities which will continue until the new teacher is a well-adjusted member of the staff. Probably the most important new idea brought out in the book is the importance of the preparation of adequate specifications for positions that are to be filled, and the furnishing of full information to prospective candidates prior to the signing of contracts. The authors remark that "Courts will interpret a contract as an evidence of the 'meeting of minds' if the services to be

rendered are stated (these are often very general), if the amount of payment for the services to be rendered is stated, and if the proper signatures of both parties are on the contract. While this may be legal, it is evident and documented by research that literally thousands of teachers enter into contracts not knowing what they are going to teach, much less knowing anything about the school system and the community."

The authors are of the opinion that "Every alert administrator will see that, when a teacher signs a contract, he signs it with a thorough knowledge of the requirements of his new position, the community, and the school and its more important policies." They then give a check list of twenty-one items which should be used in ascertaining that adequate precontract induction procedures have been followed.

The remaining three phases of the induction program are covered in similar detail. It would appear from this and from the detailed analysis of principles and practices given in the rest of the book, that this publication will repay thorough study by all concerned with the profession of teaching.

A GUIDE FOR THE STUDY OF EXCEPTIONAL CHILDREN

WILLARD ABRAHAM

Boston: Porter Sargent, 1956. 276 pages. \$3.50.

This book is designed for use in a workshop on exceptional children, or on certain types of such children. It has ample provision for entering notes and for providing data peculiar to a given situation. It bears, therefore, much resemblance to a workbook. However, this does not prevent its having a large amount of textual material of considerable interest. Most of this material is descriptive of modern programs involving exceptional students. Theoretical discourse is held to a minimum.

Probably the most objectionable aspect of the book is the traditional inclusion of a chapter on the "gifted." It is remarkable how this practice, apparently become almost a mystic ritual, continues to appear in modern publications. It must be granted, of course, that attention should be paid to the superior students, and that they are in a general sense of the word, "exceptional." However, the meaning attached to the term "exceptional children" is, in all other cases, diametrically opposed to that implied by the word "gifted." Furthermore, there is reason to believe that the type of teacher, the type of teacher training, and the type of program that is best for superior students is likewise strongly different from those most suitable for "exceptional children" in general.

This one lapse should not cause those who could use a good book dealing with the problems of mentally, physically, and emotionally handicapped

children from giving careful consideration to this publication. It should prove very helpful to inservice programs in this area.

A CRITICAL REVIEW OF THE DEVELOPMENT OF PUPIL GROWTH CRITERIA IN STUDIES OF TEACHER EFFECTIVENESS

HAROLD E. MITZEL and CECILY F. GROSS

New York: Division of Teacher Education, Board of Higher Education of the City of New York (Research Series 31) April 1956. 28 pages. \$75.

The authors have made a careful analysis of twenty studies in which pupil growth was used as a measure of teaching effectiveness. These studies were made at varying times from 1921 to 1951. They were mostly done in city schools. Both secondary and elementary situations were included. The authors point out some of the glaring weaknesses in methodology of certain of these researches, but their main concern is with fundamental problems.

First, they point out that "The evidence on the nature of teaching competence, though sketchy, is in support of its multidimensionality." Consequently the choice of aspects of pupil growth to be used in measuring teaching effectiveness, the weight to be assigned to each type of growth, and the method of combining them, are all serious problems. In fact, it may well be that there is no such thing as an over-all good or bad teacher.

Second, it is brought out that "there is no clear-cut solution to the problem of restricting measurement of growth to that brought about by a single teacher." Also, when studies are not restricted to a single grade and school, many other factors enter in to invalidate the comparison of teachers on the basis of pupil growth. Some of these are difference in maturation rates at different grades, changes in curricula goals from grade to grade and school to school, differences in school and community characteristics, and differences in class intangibles—that is, variations in "class spirit" or morale.

Third, the authors consider the statistical techniques best suited to the conduct of studies of teacher effectiveness in relation to pupil growth. They conclude that covariance analysis is the best technique of those presently available. However, it was used in none of the twenty studies analyzed.

The authors do not adopt a completely negative attitude concerning the development of ways of inferring teaching competence through study of pupil changes. However, they do clearly indicate that all present techniques and data constitute the most nebulous of beginnings. The development and use of much improved and vastly more complex research and statistical techniques may lead to a reasonable degree of success insofar as advancing

the theory of education is concerned. There seems to be no present indication whatever that it will lead to a workable method of predicting teacher success or evaluating the worth of the services of individual teachers.

ADULT EDUCATION IN TRANSITION: *A Study of Institutional Insecurity*

BURTON R. CLARK

Berkeley and Los Angeles: University of California Press (University of California Publications in Sociology and Social Institutions, Vol. I, No. 2) 1956. 159 pages, paper. \$3.00.

This publication deals primarily with the adult education program of the Los Angeles City Schools as embodied in the evening adult schools. However, the general pattern of adult education in California is discussed insofar as it provides a framework for the Los Angeles situation.

The author concludes that adult education is a marginal activity. He bases this conclusion on historical grounds and on the type of personnel and physical plant involved. That is, he points out that local districts do not have a major investment in physical plant for adult education as they do for other branches of education, such as junior colleges. Also, there is no large corps of professional teachers in adult education as there is in other areas. Most adult teachers are either lay persons (from the educational point of view) or else day school teachers for whom adult classes are purely supplementary to their regular assignments. There is, however, a relatively permanent staff of adult administrators.

The study reveals that most districts do not put a significant amount of local money into the adult program. Therefore, State money paid on an average daily attendance basis is necessary to its survival. Since ADA is based on attendance, adult programs are primarily shaped by the students. The students, by their attendance or absence, make or break adult classes and adult education teachers. This has led to the development of a cafeteria-type curriculum, restricted to subjects thought to be popular.

The author has revealed some of the weaknesses in the California adult education program; but he has also shown some of its strong points. He has done an excellent job of facing squarely some of the very real problems that confront adult educators in the State. It does not all make pleasant reading for those interested in the future of the adult education program; but it does make required reading for them.

CALIFORNIA JOURNAL OF EDUCATIONAL RESEARCH

Published by
California Teachers Association
693 Sutter Street
San Francisco 2, California

INFORMATION AND INSTRUCTIONS REGARDING MANUSCRIPTS

The California Journal of Educational Research welcomes original manuscripts on educational research. The types of material desired are:

1. City and county school research pertaining to curriculum, guidance and counseling, evaluation, supervision, and finance.
2. Digests of theses and dissertations that have practical application. Such theses and dissertations, however, must officially be approved for publication by a member of the Editorial Board (see names on inside of front cover) or by the college or university at which the research was done.
3. Studies that present novel, but tested, approaches to the solution of educational problems.

Manuscripts, except for feature articles, should be limited to approximately 1500 words. They should be typewritten double-spaced, on one side of the paper, and submitted in duplicate. Only original manuscripts will be accepted for publication.

Tables, charts and graphs often enhance a research report. When used, they should be clearly and accurately labeled. They should also be inked to size and their places designated in the manuscript.

Footnotes should be complete as to author, title, publisher, date and pages. Bibliographies accompanying manuscripts should also be complete as to data, and should be arranged alphabetically by authors.

Manuscripts will not be returned unless the author so requests, in which case a stamped, self-addressed envelope should accompany the manuscript.